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# The Relationship Between Self Efficacy and Self Regulated Learning in Students in Bukittinggi

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**ABSTRACT**

The relationship between self-efficacy and self-regulated learning in students in Bukittinggi. This study aims to see the relationship between self-efficacy and self-regulated learning in students in Bukittinggi. The population in this study was students at 15 universities in Bukittinggi with stratified proportional random sampling technique. The data collection tool used a self-efficacy scale and a self-regulated learning scale. Data analysis technique using product moment correlation test from Karl Pearson using SPSS 16.0 for windows. The results proved that there was a positive relationship, tevident from the results of the hypothesis test obtained a correlation coefficient rxy of 0.841 and p = 0.000 (p < 0.05).

***Keywords:*** *Self Efficacy, Self Regulated Learning, College Student*

## 1. INTRODUCTION

Students are students who are registered and studying in universities according to applicable rules and curriculum [1]. Based on the latest data on October 14, 2015, students in Indonesia registered at DIKTI amounted to 6,963,701 students. This number increased from previous years. In addition, data on universities in Indonesia registered in DIKTI amounted to 4,390 universities [2]. This is a fairly large number of universities when compared to other countries. This is reinforced by information obtained from www.jpnn.com which says that Indonesia is a country that has the most universities in the world.

The increasing number of students and the large number of universities shows the high public interest in education and interest in continuing to learn. Based on information obtained from www.aksipelajar.com, about the ranking of the most universities from several provinces in Indonesia, West Sumatra is ranked tenth with a total of 90 universities. Bukittinggi is one of the cities in West Sumatra. This city is also a city of education where there are 16 campuses with the number of first-year students.

Table 1. Population of level 1 university students in Bukittinggi in 2016

| No | Name of college | Total student body |
|---|---|---|
| 1 | Kampus V UNP Bukittinggi | 335 |
| 2 | IAIN Bukittinggi | 1. 900 |
| 3 | Poltekkes Kemenkes Padang Bukittinggi | 157 |
| 4 | UMSB Bukittinggi | 238 |
| 5 | STIKes Yarsi Sumbar Bukittinggi | 145 |
| 6 | STIKes Prima Nusantara | 52 |
| 7 | STIE H. Agus Salim | 192 |
| 8 | STIKes Fort De Kock | 350 |
| 9 | STBA H. Agus Salim | 29 |
| 10 | AMIK AKTAN Bukittinggi | 210 |
| 11 | Akademi Farmasi imam bonjol | 54 |

| | | |
|---|---|---|
| 12 | STKIP Ahlussunnah | 84 |
| 13 | Akademi Farmasi Dwi Farma | 64 |
| 14 | Akbid Pelita Andalas | 12 |
| 15 | STIKes Perintis | 141 |
| 16 | STIKes Ceria Buana | Does not provide data |
| | **Total** | **3.963** |

(Source: Academic section of each campus)

Students as students are expected to be successful in education and successfully apply the knowledge, they gain by using all their potential and setting accurate learning strategies [3]. The learning strategy used is very important so that learning can run effectively and efficiently [4]. One learning strategy that has a role in directing itself to transform mental abilities or academic performance is self-regulation in learning or called *self-regulated learning* [5].

The researchers conducted an initial *survey* of 30 UNP psychology students from October 6 to 8, 2015. *The survey* was conducted based on 14 *self-regulated learning* strategies stated by Zimmerman and Pons [6]. Of the 30 survey subjects, it was found that the most widely used strategy was to find information and record important things, which was as many as 15 people (50%). While the least used strategy is torepeat textbooks, which is as many as 4 people (13.3%). The results of the initial *survey* show that self-regulated learning of UNP psychology students is at the level of 50% and below, meaning that there are still few students who apply *self-regulated learning.*

The importance of self-regulated learning in the world of education has been proven from several research results such as [7] *self-regulated learning* can reduce academic procrastination. Experimental research by [8] proves that *self-regulated learning can* improve academic achievement. Research by [9] found that *self-regulated* learning plays an important role in improving student *performance* in learning.

The purpose of student education can be supported by *self-efficacy.* This is in accordance with some researchers who have proven such as [10] found that the *performance* of writing skills varies depending on the level of *self-efficacy.*The higher the *student's self-efficacy*, the better the student's writing skills. Furthermore, researchers conducted interviews based on aspects of self-efficacy to six psychology students on December 17 and 18, 2015. The results of the interview found that in students who were doing their thesis, some subjects were less sure about determining the target of graduation, easily discouraged when they found obstacles in working on the proposal. In addition, some subjects who have a target of passing, delay working on proposals when they have difficulty finding references, are afraid to see supervisors because they are not sure about the quality of the thesis, and are less confident in completing proposals independently.

Based on the interview above, it was found that lack of confidence makes individuals unsuccessful in their learning. Low confidence makes individuals less able to manage themselves in academics. Furthermore, researchers also conducted interviews with subjects who had strategies in learning and learning outcomes were quite good.

Some of the interviews above reinforce that self-efficacy is an indicator that causes *self-regulated learning*. In accordance with the results of research conducted by [11] in New York, which showed that self-efficacy and self-regulated learning are highly correlated in that they examined how mathematical and verbal self-efficacy relates to *self-regulated learning* strategies between normal achievers and talented students of grades 5, 8 and 11. Mathematical and verbal self-efficacy

correlated positively with the use of effective *self-regulated learning* strategies (e.g., self-evaluation, goal setting and planning, keeping records, and monitoring). Then research conducted by [12] in Iran found from the results of the path analysis that students who have high *self-efficacy* will have high *self-regulated learning* so that students are able to face the difficulties of biology lessons.

The results of the above research are contrary to the results of research conducted by [13] which states there is no relationship between *self-efficacy* and *self-regulated* learning in arithmetic learning in grade 1 elementary school students in Spain. Then [14] examined Iranian students who learned vocabulary knowledge and reading comprehension in English. The results found that *self-efficacy* did not correlate with planning, which is a component of *self-regulated learning*. However, self-efficacy correlates with the self-evaluation and effort components of the *self-regulated learning* component.

Based on several different research results above, researchers are interested in seeing how the relationship *between self-efficacy* and *self-regulated learning* in students in Bukittinggi with different places in previous studies. Research will be carried out in all universities in the city of Bukittinggi with the subject of first-year students. The reason for taking the subject of first-year students is to equalize the research subjects throughout the college, considering the time, ability of the researcher and the cost of research.

## 2. LITERATURE REVIEW

### *2.1 Self Regulated Learning*

According to [6] self-regulated learning refers to the process by which individuals personally activate and maintain cognition, affection, and behavior that are systematically oriented toward goal achievement. Then, [6] self-regulated learning is individuals who are able to control different cognitive motivational processes to facilitate their own learning process and who thus tend to consider themselves controllers or masters of their own learning process.

According to [6] self-regulated learning is defined as self-activated thoughts, feelings, and actions to achieve educational goals. Furthermore, [11] namely learners who are able to direct themselves while learning (self-regulated learning) can be seen from their actions and processes of planning, organizing, and directing themselves, as well as conducting self-evaluation at various levels to obtain information.

Based on the opinions of some of the experts above, it can be concluded that self-regulated learning is the process of how a learner regulates his learning by activating and maintaining his cognition, affection, and behavior oriented towards achieving learning goals [6], [15], [16].

### *2.2 Self Efficacy*

According to Bandura, *self-efficacy* refers to a person's belief in his ability to manage and carry out the actions necessary to achieve a goal. *Self-efficacy* influences individuals in exerting motivation, cognitive resources, actions, and exercising control over task demands [17]. Furthermore, [18] suggest that *self-efficacy* is an individual's assessment of their ability or competence to perform a given task, achieve a goal, and be able to overcome obstacles found.

Based on the opinions of these experts, it can be concluded that *self-efficacy* is an individual's belief about his ability to organize, manage and carry out an action, perform a task, to achieve a certain goal [18], [19].

### *2.3 Dynamics of the Relationship Between Self Efficacy and Self Regulated Learning in Students*

Self-regulated learning refers to the process by which individuals personally activate and maintain cognition, affection, and behavior that is systematically oriented toward goal achievement [6]. Self-regulated learning in Indonesia is still at a moderate to low level, this is known from several research results conducted. Likewise, the survey results in psychologyUNP self-regulated learning students are at the level of 50% and below, meaning they are still lacking. One factor that can improve self-regulated learning according to [16] is self-efficacy. Self-efficacy according to [20] is how individuals are confident about their ability to perform tasks or actions in achieving a goal.

Self-efficacy can improve self-regulated learning based on several research results namely research by [11] in New York which showed that self-efficacy and self-regulated learning are highly correlated in which they examined how mathematical and verbal self-efficacy relates to self-regulated learning strategies between normal achievers and gifted students in grades 5, 8 and 11. Mathematical and verbal self-efficacy correlated positively with the use of effective self-regulated learning strategies (e.g., self-evaluation, goal setting and planning, keeping records, and monitoring). In addition, research by [12] in Iran found from the results of the path analysis that students who have high self-efficacy will have high self-regulated learning so that students are able to face the difficulties of biology lessons. Furthermore, research by [21] examined 200 Chinese students and 160 German students studying English. He tested their differences in English mastery and the results said there was no difference in English mastery because they both had good self-efficacy so as to improve self-regulated learning in English language learning.

Based on the study in summary, the relationship between self-efficacy and self-regulated learning shows that individuals with low self-efficacy do not use self-regulated learning strategies as much as individuals with high self-efficacy. If individuals have high self-efficacy of learning situations, it will increase individual self-regulated learning in learning.

Contrary to the results of research conducted by [13] which states there is no relationship between self-efficacy and self-regulated learning in arithmetic learning in grade 1 elementary school students in Spain. Then [14] also found that self-efficacy does not correlate with planning which is a component of self-regulated learning.

### *2.4 Conceptual Framework*

This study aims to see the relationship between self-efficacy and *self-regulated learning* in college students. It can be drawn in the following outline:

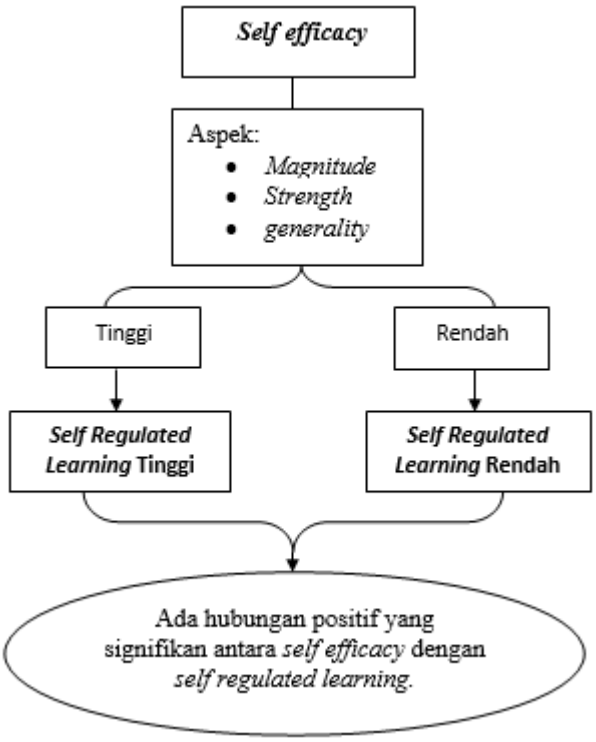


Figure 1. Conceptual Framework of the Relationship Between Self-Efficacy and Self-Regulated Learning in Students inBukittinggi.

Based on the conceptual framework above, it can be explained that *self-efficacy* has aspects, namely *magnitude, strength* and *generality.* Individuals who have every aspect of self-efficacy will have high self-efficacy so that *self-regulated learning* is also high. Vice versa, individuals who lack every aspect of self-efficacy will have low self-efficacy so that *self-regulated learning is* also low. So that the hypothesis can be formulated that there is a significant positive relationship between self-efficacy and *self-regulated learning.*

### *2.5 Research Hypothesis*

The hypotheses taken in this study are:

H0: There is no significant positive relationship between self-efficacy and self-regulated learning in students in Bukittinggi.

Ha: There is a significant positive relationship between self-efficacy and self-regulated learning in students in Bukittinggi. This means that the higher the self-efficacy of students, the higher the self-regulated learning in students.

## 3. METHODS

### *3.1 Research Design*

This research method uses a quantitative approach. Data collected in quantitative method research in the form of numbers and data analysis using statistics (Sugiyono, 2013). In accordance

with the title of this study, namely "The relationship of self-efficacy with self-regulated learning in students in Bukittinggi", the technique in this study uses correlational, which is a statistical technique used to look for relationships or correlations between two or more variables [22]. Correlational research is also called associational research. In associational research, the relationship between two or more changes is studied without trying to influence those changes [23]. Thus, this correlational research will be able to predict the relationship between the independent variable and the dependent variable.

### *3.2 Population and Research Sample*

Population is the totality of individuals that are intended to be studied and will later be subject to generalization. While the sample is a miniature of the population [22].

1. **Populasi**

   The population that will be used in the study of the relationship between self-efficacy and self-regulated learning in students in Bukittinggi is all first-year students in the city of Bukittinggi consisting of 15 universities with a total of 3,963 students.

2. **Sample**

   The samples to be used in this study are several first-year students at each university in Bukittinggi. The sampling technique in this study used stratified proportional random sampling. According to [22] proportional sample techniques are taken if population characteristics consist of categories, groups, or groups that are equal or parallel which will later affect the results of the study. The procedure carried out is to take individuals contained in each population category according to their proportion or balance to be used as research samples.

### *3.3 Data Analysis* Techniques

The data analysis used in this study was a correlation test analysis. Correlation is a technique used to find the relationship between two variables to be studied, namely independent variables and bound variables [22]. Where in this study the independent variable is *self-efficacy* and the dependent variable is *self-regulated learning.* The correlation test used is *Product Moment* correlation to describe the relationship between two variables that are both interval or ratio types. The data is then processed with the help of software. The Product Moment formula [22] is:

$$r_{xy} = \frac{N.\sum XY - (\sum X)(\sum Y)}{\sqrt{\{N.\sum X^2 - (\sum X)^2\}\{N.\sum Y^2 - (\sum Y)^2\}}}$$

Information:

N = Number of research subjects
$r_{xy}$ = Correlation coefficient between variables X and Y
X = Free variable
Y = Bound variable
$\sum_{xy}$ = Number of multiplication results of each original score of X and Y
$\sum x$ = Number of variable's original scores X

$\sum y$ = Total original score of variable Y

## 4. RESULTS AND DISCUSSION

### *4.1 Research Results*

The description of research data is an overview of research subjects found in the field. The subjects in this study were as many as 100 first-year students of the class of 2015 in 15 universities in the city of Bukittinggi. The subjects consisted of 36 male students and 64 female students. Research data in the form of numbers are described in order to provide benefits and an overview of the research subject. The description of the data in this study includes the *subject's mean score* on the variables of self efficacy and *self-regulated learning* which can be seen in the following table:

Table 2. Empirical Average and Hypothetical Average *of self efficacy* and *self-regulated learning*

| Variable | Score Hypothetical | | | | Skor Empiris | | | |
|---|---|---|---|---|---|---|---|---|
| | Min | Max | Mean | SD | Min | Max | Mean | SD |
| *Self efficacy* | 28 | 112 | 70 | 14 | 39 | 99 | 67,28 | 14,77 |
| *Self regulated learning* | 36 | 144 | 90 | 18 | 54 | 123 | 85,41 | 14,89 |

From table 7 it can be seen that the empirical mean of self efficacy is 67.28 while the hypothetical average of *self efficacy* is 70. This shows that in general the empirical mean score of the study subjects is smaller than the hypothetical average of the study. So, it can be concluded that the level of *self-efficacy* in the study subjects is lower than the level of *self-efficacy* in the general population.

Meanwhile, in the above (table 7) it can be seen that the empirical average score of *self-regulated* learning is 85.41 while the hypothetical average of *self-regulated learning* is 90. This shows that in general the empirical mean score of the study subjects is smaller than the hypothetical average of the study. So, it can be concluded that the level of *self-regulated* learning in research subjects is lower than the level of *self-regulated learning* in the general population.

### *4.2 Data Analysis*

The purpose of this study was to examine the relationship between *self-efficacy* and *self-regulated learning* in students in Bukittinggi. The hypothesis in this study is that there is a significant positive relationship between self-efficacy and *self-regulated learning* in students in Bukittinggi. The requirement to test the hypothesis using *product moment* analysis techniques, the data must meet parametric statistical assumptions, namely the data must be normally and linearly distributed (Wibowo, 2010). Therefore, normality and linearity tests are first carried out.

1. Normality Test

   The normality test aims to determine whether the data studied is normally distributed or not. Testing the normality of data distribution using a nonparametric test method, namely *the Kolmogorov Smirnov One Sample* test which was analyzed using software. The provision is that if $p > 0.05$, then the spread is said to be normal.

   The results of the normality test of the distribution of self-efficacy variables obtained K-SZ values = 0.671 and $P > 0.05$ (P = 0.7 59), *self*-regulated learning variables obtained K-SZ values = 0.833 and $P > 0.05$ (P = 0.491). The normality test results of the two variables tested showed normal. Based on table 14 it can be seen that the two variables in this study are nomally distributed.

Table 3. Variable Normality Test Results *Self Efficacy* and *Self Regulated Learning*

| No | Variable | SD | Mean | K-SZ | Asym sig (2-tailed) | Ket |
|---|---|---|---|---|---|---|
| 1 | *Self efficacy* | 14.77 | 67.28 | 0,671 | 0,759 | Normal |
| 2 | *Self regulated learning* | 14.89 | 85.41 | 0,833 | 0,491 | Normal |

2. Linearity Test

   The linearity test aims to prove whether the independent variable has a linear relationship with the dependent variable. The statistical model used to see the linearity of these variables in F-linearity, shows that the *linearity* in self-efficacy and *self-regulated learning* is F = 207.93 which has p < 0.05 (p = 0.000), thus meaning that the linear assumptions in this study have been met.

3. Uji Hypothesis

   Hypothesis testing is carried out by examining the limit of acceptance or rejection of the level of statistical significance of the resulting coefficient. Test the research hypothesis is directed to test the hypothesis in this study. The hypothesis in this study reads "there is a relationship between *self-efficacy* and *self-regulated learning* in students in Bukittinggi".

### *4.3 Results of Hypothesis Test Using Product Moment Correlation Statistical Techniques*

Based on the results of the correlation analysis of the relationship between *self-efficacy* and *self-regulated learning*, a correlation coefficient of 0.841 was obtained, p = 0.000 (p < 0.01) indicating the hypothesis was accepted. A positive correlation coefficient indicates that the relationship that occurs is unidirectional, that is, the magnitude of the score on one variable occurs simultaneously with the magnitude of the score on another variable and the low score on one variable occurs along with the small score on the other variable.

Based on the results of this study, there is a very significant positive correlation between self-efficacy and *self-regulated* learning, where the higher the self-efficacy, the higher *the self-regulated learning*. Conversely, the lower the self-efficacy, the *lower the self-regulated learning.* This means that the hypothesis proposed is accepted as correct.

**Discussion**

Based on the results of categorizing student *self-efficacy* scores in Bukittinggi, a general picture of students in Bukittinggi has a low *self-efficacy*. This shows that the subjects in this study still do not have a strong belief in their ability to deal with academic difficulties. Basically, the level of self-efficacy of each individual is different, individuals have different perceptions of their abilities that affect the level of *self-efficacy*. In accordance with [24] research looking at the differences in self-efficacy of each individual in research on the effect of self-efficacy on learning outcomes, different results were found that the average *self-efficacy* of respondents was in the moderate category.

*Self efficacy according to* [19] is an individual's belief about his ability to organize, manage and carry out actions, perform a task, to achieve a certain goal. Low self-efficacy in this study, when viewed from the source of *self-efficacy* proposed by [19], namely experiential skills, where when individuals do not master a task or expertise, individuals tend to be unsure of being able to do it. In the subjects of this study, lack of mastery of tasks made individuals have low *self-efficacy*. This can be seen from the low score on the scale item number 25 where students will cheat if the task is too difficult.

Then, the second source is the model of social experience. In the subjects of this study, the wrong social model was also the cause of low *self-efficacy.* This can be seen in the scale item no. 4 where students who see their friends cheating, will also cheat in exams. Then in item no. 7 students tend to accept invitations for recreation with friends rather than doing assignments.

The third source is social persuasion. When a person does not verbally convince himself that he has better abilities (social persuasion) then he will not be confident in his abilities (Bandura in

Maddux, 1995). Researchers assessed that the subjects of this study had low social persuasion, namely less verbal persuasion by convincing themselves capable of obstacles. This can also be seen from the low score of items 26 where students are lazy to attend lectures that have many tasks demands. In fact, if he convinces himself by telling himself that he is capable, the individual will not be afraid to take courses that have a lot of assignments. According to the results of [25] that oral persuasion is the best way to increase parenting *self-efficacy* because it can weaken resilience to inevitable failures in parenting.

Then the fourth source, a person's emotional and psychological state is able to affect *self-efficacy*, especially in depressed conditions. This can cause a person to give up and have weak confidence in his abilities. In the subjects of this study, the ability to control emotions tends to be moderate, which can be seen from the moderate score on item no. 1 that students remain focused on lectures even though they are involved in non-academic problems.

In addition, [19] also states several factors that affect the level of *self-efficacy*. First is gender. The majority of subjects in the study were women. Based on several studies, the more women accept differences in gender *stereotype* treatment, the lower their assessment of their abilities. Research by [26] shows that there are differences in the level of *self-efficacy* between women and men. So that it can be associated with the more female subjects of this study, it is one of the factors that cause low *self-efficacy*. Reinforced by the results of [27] which shows that *the self-efficacy* of mathematics lessons in adolescent boys is higher than adolescent girls.

The second factor isage, *self-efficacy* is formed through a social learning process that can take place during the lifetime. Older individuals tend to have more time span and experience coping than younger ones. The subject of this study is a first-year student who when viewed from the lecture level has a younger age. Therefore, researchers assessed the age factor seen from the college level in this subject that made the results of this *self-efficacy* study low.

The third factor is the level of education. Individuals who have a higher level of education usually have higher *self-efficacy*, because basically they learn more and receive formal education. This is not in accordance with the subjects in this study, which should be those students already at the higher education level already have high *self-efficacy*. However, the results of this study are in the low category. This could be influenced by past success experiences that will be explained in factor four.

The fourth factor is experience. *Self-efficacy* is formed as a process of adaptation and learning that exists in the environmental situation. The environment in the subject of this study is a university where first-year students have just adapted to the lecture environment so that their *self-efficacy*is low. In accordance with the results of [28] research that the longer a person works, the higher the self-efficacy that the individual has in certain jobs, but it does not rule out the possibility that the *self-efficacy* possessed by the individual actually tends to decrease or remain, depending on the experience of success and failure experienced.

From the results of this study, it is known that in general students in Bukittinggi have low *self-regulated learning*. This shows that students in Bukittinggi are still unable to implement self-regulated learning strategies effectively in their learning process.

The low *self-regulated learning* of students in this study supports the initial phenomenon that researchers found in UNP psychology. Based on the results of an initial survey conducted on 30 UNP psychology students, it was found that only 50% of students applied *self-regulated learning* strategies. Also, in line with research conducted by [29]that UIN Syarif Hidayatullah students who are the subject of his research also have low *self-regulated learning*. However, it is slightly different from research conducted by [30], [31] which found respondents from their research on average had *self-regulated learning* in the medium to low category.

Based on the results of the study above, when viewed at the factors that cause the difference in results, according to researchers there are differences in measuring instruments used. In the moderate results, the researchers made a self-regulated learning measurement tool based on 14 *self-*

*regulated learning* strategies. Meanwhile, researchers and Ishtifa made *self-regulated learning* measuring tools based on aspects.

*Self-regulated learning according to Zimmerman* (in Zimmerman &; Schunk, 2008) is the process of how a learner regulates his learning by activating and maintaining his cognition, affection and behavior oriented towards achieving learning goals. Low *self-regulated learning* can be caused by these factors. [20] said there are 3 factors that affect *self-regulated learning* the first is individual factors which include individual knowledge, level of metacognitive ability and goals to be achieved.

Based on the results of interviews with three first-year students, first-year students' knowledge of self-regulation in college demands is different from that of experienced upper-class students so that they are better able to regulate themselves in learning. The average first-year student still has a full credit load so that the more tasks and targets / goals he wants to achieve are success in each course. Because the regulatory experience is still low, researchers assume that is what causes the subjects in this study to have low *self-regulated learning*. Reinforced by the results of [32] research that the self-regulation of second-year students in learning music is higher than first-year students.

*Low self-regulated learning* in individuals can be improved by applying self-regulated learning strategies. According to [6] the strategy is self-evaluation, organizing and changing subject matter, making learning plans and goals, finding information, recording important things, and managing the learning environment. In addition, individuals must also have consequences after working on assignments, repeating and remembering information, asking for social assistance, repeating previous assignments or tests, repeating notes, and repeating textbooks.

Based on some of the descriptions above, the results showed that there was a significant relationship between *self-efficacy* and *self-regulated learning* in students, as seen from the correlation value of 0.841. This shows that there is a significant positive relationship between self-efficacy and *self-regulated learning*. This positive relationship can be interpreted that the relationship between these two variables goes in the same direction, meaning that the higher the *self-efficacy*, the higher the student's *self-regulated learning.* Vice versa, the lower the *self-efficacy*, the lower the level of *self-regulated learning* of students.

This can be interpreted that with the increase in *self-efficacy*, students who previously experienced academic problems such as procrastination, cheating, the credit system, low achievement and so on become self-regulated *learning*. Increasing self-efficacy will make students automatically apply *self-regulated learning* strategies so that they are able to face academic problems that arise and increase the chances of success in their academics. So, *self-efficacy* is one of the important factors in influencing the level of *self-regulated learning*.

The results of this study reinforce the results of research conducted by [11] in New York that from the analysis of data conducted showed that self-efficacy and *self-regulated learning* are highly correlated. Math and verbal *efficacy* correlated positively with the use of effective *self-regulated learning strategies* (self-evaluation, goal setting and planning, keeping records, and monitoring) in normal achievers and gifted students in grades 5, 8 and 11. This is also in line with research conducted by Sadi (2013) in Iran found from the results of the path analysis that students who have high self-efficacy will have high *self-regulated learning* so that students are able to face the difficulties of biology lessons.

However, the results of this study are contrary to the results of research conducted by [13] which states there is no relationship between *self-efficacy* and *self-regulated* learning in arithmetic learning in grade 1 elementary school students in Spain. Then [14] the results of their research found that self-efficacy does not correlate with planning which is a component of *self-regulated learning*.

In the results of this study, a positive correlation was found between self-efficacy and self-regulated learning of students in Bukittinggi with low *self-efficacy* and self-*regulated learning* level categories. Meanwhile, in some studies on *self-regulated learning* found the average to be at a moderate level.

## CONCLUSION

Based on the results of research and hypothesis testing regarding the relationship between *self-efficacy* and *self-regulated learning* in students in Bukittinggi, the following conclusions were obtained:

1. In general, the *self-efficacy* of students in Bukittinggi is in the low category. The lowest aspect of *self-efficacy* possessed by students in Bukittinggi is *strength*.
2. In general, *self-regulated learning* of students in Bukittinggi is in the low category. With behavioral and metacognitive aspects being in the low category.
3. There is a significant positive relationship between *self-efficacy* and *self-regulated learning* in students in Bukittinggi. That is, the higher the self-efficacy, the higher the *self-regulated learning*. Vice versa, the lower the *self-efficacy*, the lower the *self-regulated learning*.

## SUGESTION

Based on the results of this study, researchers have several suggestions as follows:

1. Theoretically

   For future research with the same theme, it is recommended to research by taking student subjects from each generation so that it can be known how self-efficacy and *self-regulated learning* in student subjects representing each batch. Because in this study only used the subject of first-year students. In addition, it is also advisable to examine how *self-regulated learning* and *self-efficacy* differ them.
2. Practically

   From the results of the study, it was found that there is a relationship between *self-efficacy* and *self-regulated learning*. From the study, it was found that the average *self-efficacy* and *self-regulated learning* of students was low. It is expected that students will further improve the aspects of *strength* and *magnitude* because it is found that very few students have this aspect. By increasing *strength* and *magnitude*, *self-efficacy* will also increase. *Strength* is the level of strength of belief. Two students believe they can solve the most difficult questions in the exam, but one student may have greater confidence or *strength* than his friend. Then *magnitude* is the number of steps of increasing difficulty. Individuals who have high *magnitude* will believe in their abilities that they are able to solve academic demands and do not give up easily.

   Then students are also expected to improve metacognitive aspects and behavioral aspects so that *self-regulated learning* also increases because it is found that few students apply these aspects. Metacognitive is the understanding and awareness of cognitive processes or thoughts about thinking by planning, organizing, measuring oneself, and instructing oneself as a necessity during the process of one's behavior in learning. Then behavior is an individual's effort to arrange themselves, select, and utilize and create an environment that supports their activities.

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